

Specialization in medical education: a conceptual antithesis to Interdisciplinarity?

A especialização na formação médica: uma antítese conceitual à interdisciplinaridade?

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Traditional medical education: contributions and limitations of the Flexnerian paradigm

Since the beginning of the 20th century, Western medical education has been strongly influenced by the ideas of the American educator Abraham Flexner, who introduced important concepts about the medical education process through a report published in 1910, presenting an overview of Medical schools in the United States and Canada. Known as the ‘Flexnerian Paradigm’, the precepts in this report gained renown in academic and scientific circles in the decades following its publication, guiding educational models in several countries in the Americas and Europe^{1,2}.

Among its main recommendations, the Flexner Report proposed a rigid organization of Medical program curricula, covering basic and clinical courses, which should be divided into three educational cycles: basic, clinical and professional. Furthermore, Flexner’s guidelines advocated the adoption of strict criteria for admission to medical schools, the full dedication of professors to teaching and research, and stronger links between universities and hospitals^{1,3,4}.

The ‘Flexnerian Paradigm’ — or biomedical model — offered relevant contributions to the qualification and standardization of medical programs, as well as to the development of scientific knowledge, thus contributing to infectious disease control and increased life expectancy⁵. However, the social and technological changes that have taken place in recent decades have sparked debates and

criticism of the biomedical teaching model in academia, mainly related to the Cartesian and biological views of the health-disease process^{2,6,7}.

From this perspective, the ‘Flexnerian Paradigm’ would look at the human body from a mechanistic and reductionist point of view, considering it a set of interconnected ‘parts’ — much like ‘parts’ of a ‘machine’ requiring regular evaluations by specialists (8). Consequently, this type of thinking would favor technical and scientific rationality over the holistic view of the human being, valuing the hospital setting and medical ‘hyperspecialization’^{2,6,7,9,10}.

Converging with reflections on medical education, several curriculum renewal initiatives have emerged in recent years proposing a shift from dichotomous knowledge — theory and practice, mind and body, objective and subjective — towards multisystemic and integrative approaches aiming at building epistemological intersections^{11,12}.

Curriculum reforms and the concept of Interdisciplinarity

The curriculum renewal process gained breadth in Brazil with the publication of the National Curriculum Guidelines (*Diretrizes Curriculares Nacionais*, DCN) for the Undergraduate Program in Medicine in 2001, reissued in 2014, which reinforced the role of critical and reflective thinking, of active learning and interdisciplinary knowledge as fundamental features for the profile of medical training in line with the needs of Brazilian health^{6,13,14}.

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However, the conceptions of Interdisciplinarity have been repeatedly misunderstood within medical education, with their meaning restricted to the mere merging of courses and training cycles into “integrated modules”, which tends to make their implementation superficial and *pro forma*^{11,12,15}. Moreover, the definitions of Interdisciplinarity, Multidisciplinarity and Transdisciplinarity are often object of imprecise and ambiguous interpretations, and thus it is relevant to present their conceptual differentiation.

The multidisciplinary approach can be understood as the juxtaposition of disciplines, in which the areas of knowledge do not change, they are only added up in a limited and transitory way. From another perspective, the notion of Interdisciplinarity refers to the integration of different disciplinary points of views through a ‘common view’, establishing new epistemological perspectives for solving complex problems^{11,12,15,16}. Transdisciplinarity has an even more comprehensive character, comprising the construction of knowledge from the spanning of disciplinary borders, composing a new epistemological framework in which disciplines would be only instrumental resources^{11,12,15}.

Despite emerging trends in medical curriculum reform towards interdisciplinary perspectives, such changes commonly face resistance in certain medical segments, educational institutions, and health care facilities. Diverging proclivities to curriculum transformations reflect, in part, obsolete views about ‘Medical Specialization’ that are still pervasive among professionals¹⁰.

Medical Specialization and Interdisciplinarity: a conceptual antithesis?

Traditionally, Medical Specialization appears as a guiding element in the dynamics of the profession, understood as the “end point” of a long educational path. From this conception, the ‘conquest of specialization’ has been associated with good compensation, recognition among peers and social status, thus exerting a strong influence on the professional choices of undergraduates and newly graduated physicians^{10,17}.

According to Maeyama and Ros, the phenomenon of ‘hyperspecialization’ and the overvaluation of specialties may be related to the incorporation of high-density technologies by certain medical areas, which, in a context of hegemony of the Flexnerian model, led to its greater social and professional recognition. Consequently, specialties that obtained greater input from hard technologies to the detriment of relational skills — usually focal areas and sub-areas — have aroused greater interest from professionals, corroborating the segmentation of the medical perspective on the human body¹⁰.

From another point of view, the delimitation of the spectrum of professional activity represents a major incentive to specialization, as the accelerated production

of scientific studies, together with the discovery of ‘new’ diseases, diagnostic procedures and therapeutic resources have caused an overburden of knowledge, humanly impossible to be properly assimilated by a single medical field.

Nevertheless, the importance of medical residency programs, recognized as the gold standard of specialization, for the development of professional skills and competences, as well as for the immersion of newly graduated physicians in the first years of medical practice, should be emphasized^{2,17}.

From these perspectives, Interdisciplinarity and Specialization would assume completely opposite positions: while the former would promote integration between different fields of knowledge, allowing for a broader, holistic view of a particular object of study, the latter would tend to delimit and restrict to a specific path for the achievement of excellence and detail in the study of a particular object. Thus, more relevant than opposing such perspectives would be to understand their particularities, seeking to have them act in a synergistic and complementary way in the medical education process.

Reconciling paradigms: training specialists with an interdisciplinary perspective

The Cartesian conception of knowledge segmentation for better understanding and mastery, stands as a valuable epistemological approach by which humanity has organized and deepened the advances of Science over the centuries. However, Interdisciplinarity manifests itself as a synthesis of the articulation between different human knowledges, the reason why knowledge is produced.

In this sense, considering the contributions of both epistemological thoughts, Specialization and Interdisciplinarity should have their premises recognized and reconciled in the context of the political-pedagogical projects of educational institutions. Thus, in the field of Medical Education, curriculum renewal strategies will not be effective if they undertake specific and abstract changes — such as merging disciplines and replacing names. Instead, institutions should promote organizational and cultural transformations.

According to Harden, discussions about Interdisciplinarity in the university setting often result in the polarization of professors who are for or against curriculum integration initiatives. However, disciplinary integration is spectrum with diverse nuances, and should not be understood and limited to the dichotomy between polar extremes. Therefore, the author proposes an 11-stage model of curriculum integration, through which educators would be able to plan, implement and evaluate the medical curriculum, minding the particularities and objectives of each stage in professional training¹⁸.

According to this concept, Frenk *et al.* emphasize

the relevance of interprofessional education for the improvement of global competencies – needed by all professionals – including leadership, management, scientific and communication skills¹⁹. In the context of residencies, multidisciplinary teamwork initiatives have been suggested as strategic resources for the building of interdisciplinary bridges, enabling knowledge exchange in the coexistence of different professions and medical specialties^{16,20}. As a result, such interactions would contribute to the building of holistic and interdisciplinary views among specialist physicians.

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